



The eX 800A Series eMatrix System is a fully integrated and versatile public address system which is designed distinctively to fulfill the demands for both emergency and communication broadcasting. The eX 800A Series eMatrix System operates normally as a Public Address Management System, and during emergency, the system shall transform into an Emergency Management System. eX 800A Series consists of Basic (n + 2 - 1) Early Evacuation System.

The eX 800A Series is able to handle up to a maximum of 20 inputs which consist of 12 messages / auxiliary inputs and 8 microphones while providing a maximum of 60 audio outputs . The 60 pure audio outputs are fully expandable to 188 speaker zones using relays, which enables the eX 800A Series to command an extensive area. The eMatrix System is able to handle up to 8 simultaneous inputs and 60 simultaneous outputs.

- Supports a maximum of 20 audio inputs and 60 audio outputs.
- The audio outputs are expandable to 188 speaker zones.
- Allows a maximum of 8 simultaneous paging.
- Supports up to 10 card slots per frame which can be configured to suite various applications.
- System configuration and monitoring can be done using the eX 800A Series Proprietary Graphical User Interface via a PC.
- Automatic system diagnosis to ensure that the system is working at an optimum condition.
- Supports up to a maximum of 128 control inputs and 128 control outputs.
- Built-in internal Timer to allow automatic event scheduling.
- Logs up to 3500 events which can be used for future references.
- Features three type of user access level password protection for security purposes.
- Remote monitoring can be performed via WAN or LAN network system.
- The eX 800A Series eMatrix System features the following functions;
 - Weekly Programmable Time Scheduler, Daylight Saving Setting and Special Occasion.
 - Microphone Queue.
 - System Self Diagnosis (Hardware & Audio Path).
 - Remote monitoring, configuration upload and email notification on status monitoring.
 - Allows a record of 2500 normal events and 1000 evacuation events.
- Multiple eX 800A Series eMatrix Systems can be integrated together via VECTUSnet platform.



eX 800A



eX 801A
Single CPC Main Frame

The eX 801A Single CPC Main Frame houses all the module cards and distributes the incoming power supply to the frame's multi-voltage power supply rail. The main frame features ten card slots for various module cards, Central Processing Card (CPC), and the Power Supply Inlet Card. The eX 801A utilizes a CPC to control and monitor all operation. The front panel of the main frame is integrated with indicators to state the status of the unit such as Power, CPU off, Fault and Status. The main frame also transmits audio and data information to the extension frame for additional module cards if required.

eX 802A
Dual CPC Main Frame

The eX 802A Dual CPC Main Frame has all the features found in the eX 801A Single CPC Main Frame except that it houses an additional Standby Central Processing Card (CPC) which automatically takes over the operation of the Main CPC in the event of a fault. This feature avoids operational down time and eliminates the need to have a fully redundant system as a backup which is much costlier and difficult to maintain. Operation automatically returns to normal when it detects that the fault has been rectified at the Main CPC.



eX 803A
Extension Frame

The Extension Frame is used when additional module cards are needed to cater for a more extensive public address system. Similar to the main frame, the extension frame accepts power supply and converts it to a lower voltage for module cards usage. The eX 803A features ten card slots, Extension Card and Power Supply Inlet Card. Status indicator for Power is available on the front panel of the frame.

Technical Specifications

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Central Processing Card	1 no. eX 821A
No. of Power Supply Inlet Card	1 no. eX 881A
No. of Card Slot per Frame	10
Indication	Power, CPU OFF, Fault, Status
Material & Finish	Mild Steel; Epoxy Coated Black
Dimensions	483 x 133 x 200 mm
Weight	2.9 kg

Technical Specifications

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Central Processing Card	1 no. eX 821A; 1 no. of eX 822A
No. of Power Supply Inlet Card	1 no. eX 881A
No. of Card Slot per Frame	9
Indication	Power, CPU OFF, Fault, Status 1, Status 2
Material & Finish	Mild Steel; Epoxy Coated Black
Dimensions	483 x 133 x 200 mm
Weight	3.1 kg

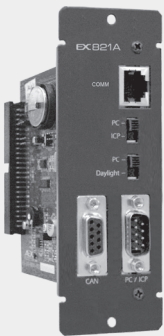
Technical Specifications

Item	Specification
Power Requirement	24 Vdc (Regulated), 2.5 A
No. of Power Supply Inlet Card	1 no. eX 881A
No. of Extension Card	1 no. eX 824A
No. of Card Slot per Frame	10
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	483 x 133 x 200 mm
Weight	2.7 kg



eX 811A
Control Manager

The eX 811A Control Manager is the proprietary software which is exclusively integrated with the eX 800A Series to enable the user to configure and customize the eMatrix System to suite its application. It allows user to configure input channel, output zones, time scheduler, failure output patterns, system diagnosis settings and many other functions. The Control Manager supports up to 3500 event logs, which records the system's activities and faults. Moreover, the software enables the user to perform tests to check the status of audio path, hardware cards and so on. It also provides a constant monitoring system so that the eMatrix System is in optimum working condition. For security reason, the software provides 3-level password protection and any login will automatically be detected by the software when the password is entered.

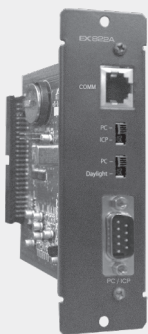


eX 821A
Central Processing Card

The Central Processing Card has a built-in Real Time Clock and a CPU fault detection circuit. The Central Processing Card main function is to coordinate the activities of the module cards as well as to process the configuration from Control Manager to the respective module cards. The eX 821A card is also able to coordinate a simultaneous voice evacuation process using its onboard Early Evacuation System (EES).

Technical Specifications

Item	Specification
Connector	1 No. RJ45 Connector 1 No. DB9 Male Connector 1 No. DB9 Female Connector
Power Requirement	24 Vdc (From Backplane), 650 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	45 x 128 x 173 mm
Weight	160 g

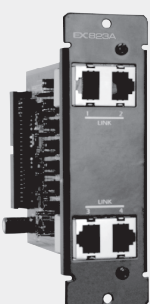


eX 822A
Central Processing Card 2

The eX 822A works as a hot-standby Central Processing Card (CPC) for the eX 821A. The module slots into a dedicated slot in the eX 802A Dual CPC Main Frame and monitors the operation of the primary CPC. In the event of failure to the primary CPC, the secondary CPC will automatically take over the entire operation. The switchover is instantaneous while an audible warning is emitted in the event of failure for rectification work. Every event is logged for reporting and available for print-out from the GUI.

Technical Specifications

Item	Specification
Connector	1 No. RJ45 Connector; 1 No. DB9 Female Connector
Power Requirement	24 Vdc (From Backplane), 650 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	130 g

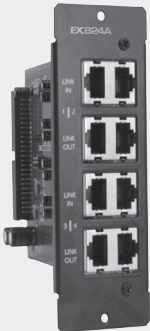


eX 823A
Main Frame Extension Card

This card serves as a data and audio signal transmission link to the extension frame via 4 RJ45 connectors. It enables the main frame to communicate with the extension frame.

Technical Specifications

Item	Specification
Connector	4 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	310 g



eX 824A
Extension Frame Extension Card

This card receives data and audio signal from the main frame. Supports data and audio signal transmission to other extension frame if required via 8 RJ 45 connectors.



eX 831A
Auxiliary Input Card

The eX 831A Auxiliary Input Card serves as the pre-amplifier for sources like background music, digital messages and microphones. Each card features two Auxiliary Inputs with Control Input. The audio inputs feature jumper settings for either microphone (-70dB to -45dB) or line (-20dB to 8dB). The Auxiliary inputs are stereo inputs for background music player and individual gain can be adjusted via recessed potentiometer. The card can also provide phantom power if connected to a condenser microphone. The eX 831A card utilises RJ45 connectors for both audio input and control input. This card is to be installed in the eX 801A or eX 802A Main Frame only.



eX 834A
Microphone Input Card

The eX 834A Microphone Input Card provides two inputs for Remote Microphones and Emergency Microphones. Each input channel is able to communicate with eight Remote Microphones or a combination of four Emergency Microphones and 4 Remote Microphones. The eX 834A utilizes RJ45 connectors for Audio and Data Input. This card is to be installed in eX 801A or eX 802A Main Frame only.



eX 836A
Audio Output Card

The eX 836A provides two 0 dB electronically balanced audio outputs with individual gain control via the Control Manager software. A dry contact output is available to provide external control which can be used for overriding the audio attenuator when the channel is activated. The module either connects directly to the power amplifier inputs or supervisory unit for amplifier changeover purposes.

Technical Specifications

Item	Specification
Connector	8 Nos. RJ 45 Connector
Power Requirement	24 Vdc (From Backplane), 80 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	45 x 128 x 173 mm
Weight	190 g

Technical Specifications

Item	Specification
No. of Channel	2
Input Sensitivity	MIC: -70 to -45 dB (adjustable) with built in Audio Limiter, 600 Ω, unbalanced LINE: -20 to +8 dB (adjustable), 10 kΩ, balanced MIC or LINE selectable by the built-in jumper
Low Frequency Filter (100 Hz)	-15 dB to + 15 dB Boost & Cut (adjustable)
High Frequency Filter (10 kHz)	-15 dB to + 15 dB Boost & Cut (adjustable)
Distortion	< 0.5%
Frequency Response	20 Hz - 20 kHz
Phantom Power	7.5 V
Control Input	Dry Contact Activation
Control	2 Nos. Volume Control
Connector	2 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 30 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	157 g

Technical Specifications

Item	Specification
No. of Channel	2
Connectable Microphone	eX 861A, eX 862A, eX 863A, eX 864A eX 865A, eX 866A, eX 867A, eX 868A
Connector	2 Nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	158 g

Technical Specifications

Item	Specification
No. of Channel	2
Output Level & Impedance	0 dBV, 600 Ω Balanced
Control Output	NO Dry Contact (max. 24 Vdc, 250 mA)
Connector	2 Nos. RJ45 Connector; 1 No. 1 x 4-pin Panel Feed Through Connector
Power Requirement	24 Vdc (From Backplane), 150 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	205 g



eX 841A
Control Input Card

The eX 841A Control Input Card provides up to 16 control sensor inputs where it is able to receive dry contact signals provided by any external system. All the inputs are opto-isolated. These sensor inputs data will be transmitted to the Central Processing Unit for further processing.



eX 842A
Control Output Card

The eX 842A Control Output Card provides up to 16 make/break relay contact outputs where it transmits output signal to any external system. Each card channel is able to withstand voltage of 24 Vdc / 120 Vac and control current of 250mA.



eX 881A
Power Supply Inlet Card

The eX 881A Power Supply Inlet Card accepts regulated 24 Vdc power supply through its 3 pin terminal block, which includes an earth termination.



eX 874A
Blank Panel

The blank panel is used to cover any unused slots in the frame to prevent foreign objects from entering the enclosure.

Technical Specifications

Item	Specification
No. of Channel	16
Sensing Method	Dry Contact or Current Loop (jumper selectable)
Dry Contact Method	NO
Current Loop Method	Released Voltage 24 Vdc, 5 mA
Connector	4 Nos. RJ45 connector
Power Requirement	24 Vdc (From Backplane), 100 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	158 g

Technical Specifications

Item	Specification
No. of Channel	16
Triggering Method	NO or NC Dry Contact (jumper selectable)
Withstand Voltage	24 Vdc, 250 mA
Connector	4 nos. RJ45 Connector
Power Requirement	24 Vdc (From Backplane), 320 mA
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	35.5 x 128 x 173 mm
Weight	230 g

Technical Specifications

Item	Specification
Power Handling	24 Vdc (Regulated), 2.5 A
Connector	1 No. 3-Pin Terminal Block,
Material & Finish	Mild Steel; Epoxy Coated Black
Dimension (W x H x D)	19.5 x 128 x 173 mm
Weight	100 g

Technical Specifications

Item	Specification
Material & Finish	Mild Steel; Epoxy Coated
Dimension (W x H x D)	35.5 x 128 x 5 mm
Weight	20 g

Technical Specifications

Item	Specification
Audio Input Level	0 dBV, (Unbalanced)
Output Channels	Paging Channel, Music Channel
Audio Output Level & Impedance	0 to +4 dBV (Adjustable) , 600 Ω (Balanced)
Frequency Response	20 - 20 kHz
THD Distortion	< 0.05 % @ 0 dB
Connectors	3 nos. RJ45 Connectors 3 nos. 3.5 mm Headphone Connector 1 no. USB B - Type Connector 1 no. DC Power Supply Input (2.0 mm)
Indicators	USB, Communication & CPU Off
Power Requirement	15 Vdc, (Regulated, through DC Connector), Maximum 500 mA, 5 Vdc (through USB)



VL 31 Station Adaptor

- Serves as preamp unit for VL 21 and VL 22 audio to conventional PA system.
- Provides RS 485 and RS 232 data communication ports for interfacing with conventional PA System.

eX 861A . eX 862A . eX 863A . eX 864A
Emergency Microphone

The Emergency Microphone produces 0 dB Audio Balanced Output and communicates with eX 834A Microphone Input Card via RS 485 Communication line. Each communication line is able to connect 4 Emergency and 4 Remote Microphones or 8 Remote Microphones. It has a maximum distance of 1.2 km for a single Emergency Microphone. The Emergency Microphone features a built-in siren, audio gain control and auto mic OFF when it is left unattended. The Emergency Microphones are equipped with programmable function keys. These function keys can be programmed to perform zone selection, relay activation or any other matrix activities. There are four models for Emergency Microphones, namely eX 861A (10 functions), eX 862A (20 functions), eX 863A (40 functions) and eX 864A (120 functions). The microphones can either be a desktop unit or wall mounted using optional mounting bracket.



Technical Specifications

Item	eX 861A	eX 862A	eX 863A	eX 864A
Output Level & Impedance	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced
Gooseneck Microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone
Distortion	< 1 %	< 1 %	< 1 %	< 1 %
Frequency Response	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz
Signal-to-Noise Ratio	> 60 dB	> 60 dB	> 60 dB	> 60 dB
Internal Monitor Speaker	0.5 W	0.5 W	0.5 W	0.5 W
Volume Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control	Microphone Level Control, Monitor Speaker Level Control, Siren Level Control
Auto Mic OFF	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.
Number of Programmable Functions	10	20	40	120
Number of Connectable Units	4	4	4	4
Communication Protocol	RS 485	RS 485	RS 485	RS 485
Connector	RJ45, panel feed through connector	RJ45, panel feed through connector	RJ45, panel feed through connector	RJ45, panel feed through connector
Communication Distance	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)
Power Requirement	24 Vdc (Regulated), 300 mA	24 Vdc (Regulated), 320 mA	24 Vdc (Regulated), 320 mA	24 Vdc (Regulated), 420 mA
Material & Finish	ABS Resin & Aluminium, Epoxy Coated Black			
Dimension (W x H x D)	265 x 64.5 x 185 mm	265 x 64.5 x 185 mm	265 x 64.5 x 185 mm	475 x 64.5 x 185 mm
Weight	1.3 kg	1.3 kg	1.3 kg	2.0 kg

eX 865A . eX 866A . eX 867A . eX 868A

Remote Microphone

The Remote Microphone produces 0 dB Balanced Audio Output and communicates with the eX 834A Microphone Input Card via RS 485 communication. Each communication line can support up to 4 Emergency and 4 Remote Microphones or 8 Remote Microphones. Maximum cabling distance is 1.2 km (for a single Remote Microphone). The Remote Microphone features a built-in chime, audio gain control and Auto Mic Off if left unattended for a preset period of time. The Remote Microphone are equipped with programmable function keys. These function keys can be programmed to perform zone selection, relay activation or any other matrix activities. There are four models for Remote Microphones, namely eX 865A (10 functions), eX 866A (20 functions), eX 867A (40 functions) and eX 868A (120 functions). The microphones can be desktop unit.



Technical Specifications

Item	eX 865A	eX 866A	eX 867A	eX 868A
Output level & Impedance	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced	0 dBV 600 Ω Balanced
Gooseneck Microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone	Unidirectional electret condenser microphone
Distortion	< 1 %	< 1 %	< 1 %	< 1 %
Frequency Response	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz	100 Hz - 20 kHz
Signal-to-Noise Ratio	> 60 dB	> 60 dB	> 60 dB	> 60 dB
Internal Monitor Speaker	0.5 W	0.5 W	0.5 W	0.5 W
Volume Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control	Microphone Level Control, Monitor Speaker Level Control, Chime Level Control
Auto Mic OFF	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.	15 sec. to 2 min.
Number of Programmable Functions	10	20	40	120
Number of Connectable Units	8 (include Emergency Mic)	8 (include Emergency Mic)	8 (include Emergency Mic)	8 (include Emergency Mic)
Communication Protocol	RS 485	RS 485	RS 485	RS 485
Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector	RJ45, Panel Feed Through Connector
Communication Distance	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)	1.2 km (Shielded Cable)
Power Requirement	24 Vdc (Regulated), 230 mA	24 Vdc (Regulated), 250 mA	24 Vdc (Regulated), 250 mA	24 Vdc (Regulated), 350 mA
Material & Finish	ABS Resin & Aluminium Epoxy Coated Black			
Dimension (W x H x D)	210 x 64.5 x 185 mm	210 x 64.5 x 185 mm	210 x 64.5 x 185 mm	430 x 64.5 x 185 mm
Weight	1.2 kg	1.2 kg	1.2 kg	1.2 kg

VECTUS VL Series - Centralised Network PA System

The VL Series is a combination of PA system hardware and software built on VECTUSnet, AEX SYSTEM's high-level proprietary integrated network communication protocol which is built on top of TCP/IP. The ontology of VECTUSnet is to heuristically optimize the interactive operation of multiple subsystem on network environment. It has been specifically created by AEX SYSTEM to provide the most manageable integration of Digital Audio, Video & Data Information.

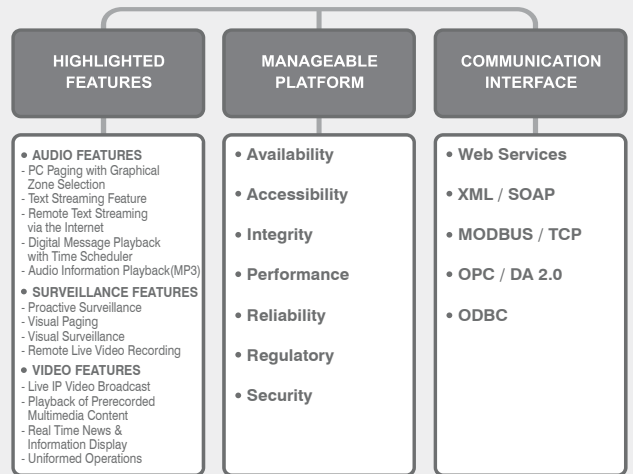
This allows for the implementation of a centralised PA system with VECTUS array of paging and surveillance features. The VL Series also makes previously unattainable integration of the conventional PA system with other building services possible. TCP/IP compliant systems such as the Fire Alarm System, CCTV System, Intrusion System and Building Management System can now be integrated to provide instantaneous voice assisted response to each system. All these are accomplished within a single network system.



VECTUSnet
technology

VECTUSnet is the core of VECTUS Series of products. It ensures manageable integration of digital audio, video and data information and defines the system quality from the aspects of availability, accessibility, integrity, performance, reliability, regulatory and security. VECTUSnet is fully TCP/IP compliant for maximum scalability and expandability purposes. It is backward compatible to all upcoming systems developed by AEX SYSTEM.

VECTUSnet technology



VL 12 Multisystem Network Manager



- Simplistic and user friendly Windows based graphical user interface.
- Multi Network Station initialization and configuration.
- Allows up to 8 standalone PA Systems to be networked together.

VL 21S Network Paging Station (Standard)

VL 22S Multi-System Network Paging Station (Standard)

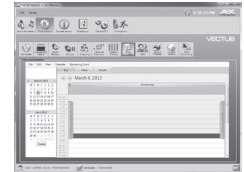


- Fully functional paging terminal with Audio & Text Streaming capabilities.
- Windows based graphical interface.
- Designed for use with both mouse control and touch screen.
- In-built background music and digital tuner source player.
- User-friendly time scheduling capabilities.
- Receiving and making announcements over the internet.
- Text Streaming engine ready for Text Paging.
- Fully functional paging terminal for multi PA System paging. (Only available for VL 22S Multi-System Network Paging Station)



1 PC Paging

PC Paging provides flexibility to allow any existing computer workstations to be utilized as a paging station.



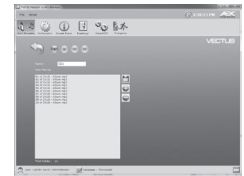
5 Time Scheduling

Time scheduling programs allows the system to perform automated daily tasks such as broadcasting of hourly messages such as opening times and closing times of a business operation. This allows business operations to run leaner and more efficiently.



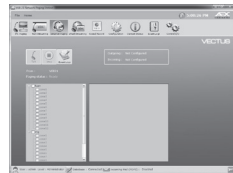
2 Text Streaming

Text Streaming provides consistent announcements by allowing audio paging to be done simply by typing the announcements into a paging terminal.



6 Background Music Source

The VECTUS system also doubles up as a BGM source for MP3 playback.

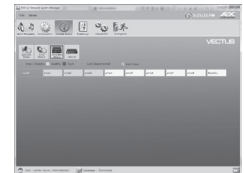


3 Internet Paging / eText Streaming

Live paging can be simultaneously done up to four sites located outside the LAN. Three modes of broadcast are available; Direct Audio Streaming, Delayed Audio Streaming (with Time Scheduler) or Text Streaming when the bandwidth is limited.

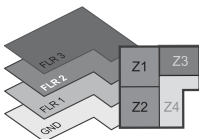


Amplifier



7 System Status Monitoring

The overall system status can be monitored via the VECTUS software. All critical component's status such as amplifier status can easily be checked online.



4 Graphical Zone Selection

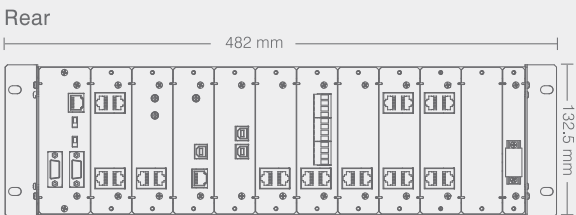
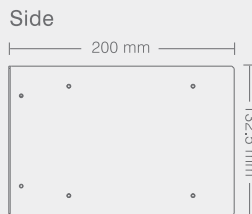
Allows operators to accurately select zones during announcements from a virtual building displayed.



8 Fail Safe Mode

In the event of a failure to the network infrastructure, the eX 800A system can operate independantly as normal without any compromises on its failures.

Physical Dimensions



Engineers' Specifications

The eMatrix shall be modular in design and all module cards shall be inserted from the rear. The system shall be able to accommodate 10 module cards in a single frame besides the Central Processing Card and Power Supply Inlet card. The system shall be able to support up to a maximum of 20 audio inputs and 60 audio outputs. It shall allow 8 simultaneous broadcast to any of its 60 audio outputs. The audio outputs shall be expandable to 188 loudspeaker zones. The system shall accept up to a maximum of 128 Dry-contact control inputs and 128 Relay control outputs. The system shall be configured through a Windows-based Graphic User Interface software via PC. After configuration, the system shall be a stand-alone system that does not need any PC connected. The

configuration software shall have 3 access levels of password protection. The system shall provide a built-in internal timer for automatic event scheduling. The system shall automatically perform self-diagnosis and any fault detected shall be recorded or notified. The system shall be able to record up to 3500 events. The eMatrix System shall also feature remote monitoring via WAN or LAN. The system shall accept regulated DC power supply from an external power supply.